

A substance has a density of 7.4 g/mL and a mass of 150 g. What is the volume of the substance?

$$V(D) = \left(\frac{m}{V} \right) V$$

$$\cancel{D}V = \frac{m}{\cancel{D}}$$

$$V = \frac{m}{D}$$

$$m = 150 \text{ g}$$

$$D = 7.4 \text{ g/mL}$$

$$= \frac{150 \text{ g}}{7.4 \text{ g/mL}}$$

$$= 20.3 \text{ mL}$$

A substance has a density of 0.54 g/mL and a volume of 200 mL. What is the mass of the substance?

$$v(D) = \left(\frac{m}{v} \right) v$$

$$Dv = m$$

$$m = DV$$

$$D = 0.54 \text{ g/mL}$$

$$V = 200 \text{ mL}$$

$$= (0.54 \text{ g/mL}) (200 \text{ mL})$$

$$= 108 \text{ g}$$

A substance has a mass of 100 g and a volume of 1200 mL. What is the density of the substance?

$$\begin{aligned} D &= \frac{m}{V} & m &= 100 \text{ g} \\ & & V &= 1200 \text{ mL} \\ &= \frac{100 \text{ g}}{1200 \text{ mL}} \\ &= 0.08 \text{ g/mL} \end{aligned}$$